

PROTOCOL PROCESSOR

ABSTRACT

A protocol processor is a specialized processor dedicated to extracting data (i.e., a
5 payload) from an incoming communication (e.g., packet) and configuring
outgoing data for transmission, and includes one or more protocol processing
elements (PPE). Each PPE may be programmed to handle any set of
communication protocols, and includes a set of large registers (e.g., 128 bytes,
256 bytes). A PPE also includes a parse unit for parsing packets to retrieve
10 certain information and a lookup unit for accessing a control block indicating how
to process an incoming packet or outgoing payload. A modification unit removes
headers from incoming packets and/or adds them to outgoing data. A timer unit
manages a large number of timers (e.g., for different communication streams). A
control block cache may store recently accessed control blocks, and a data
15 streaming unit streams packets (or packet portions) into and out of the registers.